MEKHEDOV, V.N.

8001-RML

Radiochemical study of the products of spallation of silver by high-energy particles. B. V. Kurchatov, V. N. Mekhedov, N. I. Borisova, M. Ya. Kuznetsova, L. N. Kurchatova, and L. V. Chistyakov. *Sessiya Akad. Nauk S.S.S.R. po Mirnomu Ispol'zovaniyu Atomnoi Energii*, July 1-5, 1955, *Zasedaniya Otdel. Khim. Nauk* (Moscow) 178-202 (English summary, 202-4).—The compn. and yield are given for the spallation products of Ag bombarded with 560-m.e.v. α-particles, 280-m.e.v. deuterons, and 480-m.e.v. protons. About 75 spallation products were observed. The product yields rapidly decreased with at. no., passing through a min. in the region of at. no. approx. equal to 25-8. The total cross section was found to be 0.43 × 10^{-24} sq. cm., which corresponded to 0.32 of the geometrical cross section. When Ag was irradiated by 480-m.e.v. protons, the cross section for the formation of the light nuclei C^{11}, Na^{24}, and P^{32} was approx. 3 × 10^{-29} sq. cm. The formation of light nuclei was believed to be the result of processes in which asym. fission from an excited level predominated. The following hitherto unknown isotopes were detected: Cd[illegible], Cd[illegible], Ag[illegible], Mo[illegible], Sr[illegible], Sr[illegible], and Rb[illegible]. J. R. L.

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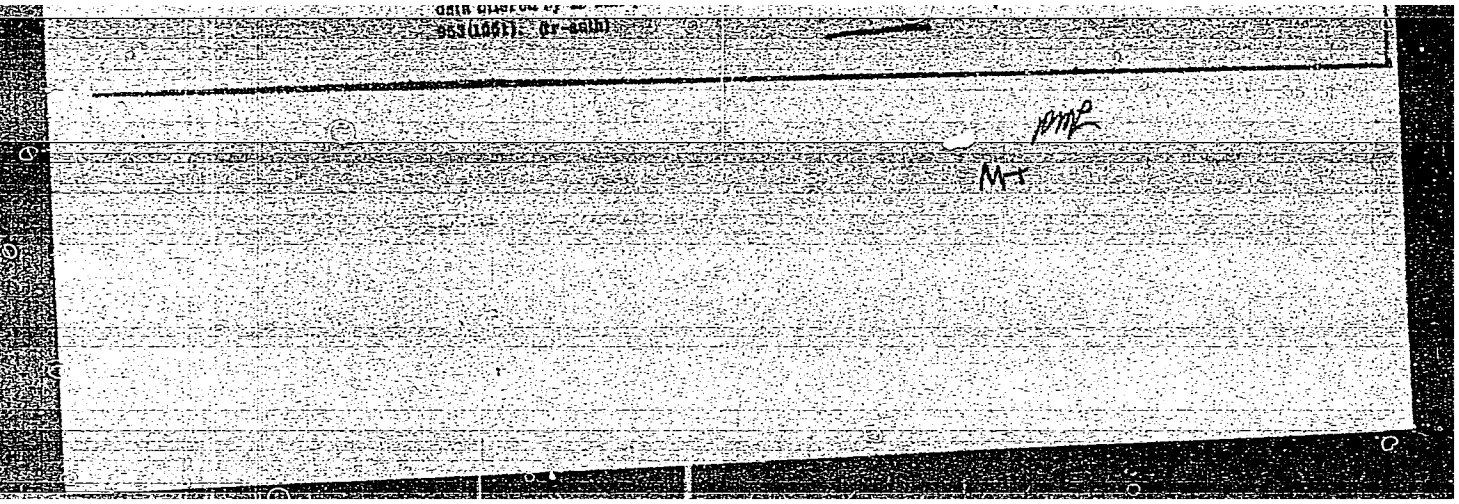
MEKHEDOV, V. N.

"The Connection Between Periods of Spontaneous Fission and Periods of alpha Decay", a report presented at the Conference on the Physics of Nuclear Fission, 19-21 January 1956, Atom Energ., No. 1, 1956.

SECONDARY NUCLEAR REACTIONS IN BOMBARDMENT OF TIN BY FAST PROTONS. M. Ya. Kuznetsova, V. N. Mekhedov, and V. A. Khalkin. Joint Institute of Nuclear Research. Laboratory of Nuclear Problems. 1957. (In Russian).

Radiochemical analysis was used in the investigation of Te and I production from Sn bombarded by 170 to 660 Mev protons. Cross sections for α particle and Li nucleus secondary capture reactions at 660 Mev were found to be 10×10^{-30} cm² and 1.6×10^{-30} cm², respectively. The cross sections were in good agreement with the results obtained



MEKHEDOV

MEKHEDOV, V.N.

Certain features of the spontaneous fission of heavy nuclei. (MIRA 10:10)
Atom.energ.supplement no.1:181-188 '57.
(Nuclear fission)

Mekhedov, V.N.

48-7-18/21

AUTHORS: Kuznetsova, M.Ya. , Mekhedov, V.N.

TITLE: A Method for Measuring the Activity of Nuclei Exposed to a K-Capture (Metod izmereniya aktivnosti yader, ispytyvayushchikh K - zakhvat)

PERIODICAL: Izvestiya Akad. Nauk SSSR, Ser. Fiz., 1957, Vol. 21, Nr 7, pp. 1020 - 1024 (USSR)

ABSTRACT: The isotopes with a deficiency of neutrons are to be considered as the overwhelming portion of the products of the interaction between nuclei and particles with an energy of several hundred MeV. In the case of middle and heavy elements such isotopes in most cases disintegrate by means of the K-capture. The specific peculiarities of the formation of isotopes at high energies as well as of the process of K-capture, make great demands on the method: a) it must guarantee a reliable recording of the weak and weakly-ionizing radiation (10 - 100 keV), b) the efficiency of the radiation recording must be sufficiently high and as far as possible the same for different initial elements, c) beside X-rays or Oghe (Auger?) electrons the apparatus should also record the concurrent radiation of positrons and electrons, as well

Card 1/3

48-7-18/21

A Method for Measuring the Activity of Nuclei Exposed to a K-Capture

as the accompanying γ-radiation, d) the possibility should exist to check the connection between the recording radiation and the processes of the K-capture in the case of the respective elements. For their investigations the authors chose X-rays, and the Geiger counters as recorders. Figure 1 shows and explains the scheme of such a magnetic analyzer. The calculated effectiveness curve (I) of the recording of X-rays is given on figure 2, as well as the curve (II) of the variation of the absorption correction for different Z. The process of the identification of X-rays in the case of weak radiation intensities is also explained. Figure 3 records the variation of the mass coefficient of the γ^{125} X-ray absorption in different elements. All resulting values are contained in a table and compared with the calculated ones. This method proved to be suitable for work with a great number of elements up to and including rare earths. It differs advantageously from the other methods by the simplicity of the apparatus and the reliability of the identification of radiation. There are 3 figures, 1 table and 8 references, 5 of which are Slavic.

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48-7-18/21

A Method for Measuring the Activity of Nuclei Exposed to a K-Capture

ASSOCIATION: Laboratory for Nuclear Problems of the United Institute for Nuclear Research
(Laboratoriya yadernykh problem ob"yedinennogo instituta yadernykh issledovaniy)

AVAILABLE: Library of Congress

Card 3/3

89-4-5-7/26

AUTHORS: Kuznetsova, M. Ya., Mekhedov, V. N., Khalkin, V. A.

TITLE: Secondary Nuclear Reactions at the Fast Proton Bombardment of Tin (Vtorichnyye yadernyye reaktsii pri bombardirovke olova bystrymi protonami)

PERIODICAL: Atomnaya Energiya, 1958, Vol 4, Nr 5, pp. 455 - 460 (USSR)

ABSTRACT: By means of radiochemical methods the yields of the formation of Te-isotopes and of I-isotopes were determined. These nuclei are formed at the vaporization of the tin nucleus at a proton bombardment, by the target nuclei trapping the particles He^4, $_3Li$ and $_4Be$ which are caused by the vaporization. For the different energies of the protons the following cross sections were measured in μb:

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89-4-5-7/26

Secondary Nuclear Reactions at the Fast Proton Bombardment of tin

Formed isotope	E_p=170 MeV	E_p=340 MeV	E_p= 480 MeV	E_p= 660 MeV
Te^{118}	3,6±1,0	16,5±1,5	14.5±7.7	10,0± 1,3
I^{120}	0.02±0.01	0,03±0.01	0.10±0.01	0.27±0,20
I^{121}	0,020±0,005	0,067±0,003	0.15±0.03	0,240±0.007
I^{123}	0,11±0,08	0,30±0,07	0.56±0,16	0,97±0.20
I^{124}	~0,01	0,024	0,035	0,060±0,008
I^{126}	~0,01	0,02	0,048±0.006	0,06±0,01

The results obtained here **agree with the data** from reference 6. There are 1 figure, 2 tables and 9 references, 5 of which are Soviet.

SUBMITTED: June 18, 1957
AVAILABLE: Library of Congress

Card 2/2

1. Tin—Nuclear reactions 2. Proton bombardment 3. Nuclear reactions 4. Tellurium isotopes (Radioactive)—Determination 5. Iodine isotopes (Radioactive)—Determination

89-4-5-13/26

AUTHORS: Komochkov, M. M., Mekhedov, V. N.

TITLE: Activation of the Air by Radiation From a Synchrocyclotron (Aktivatsiya vozdukha izlucheniyami ot sinkhrotsiklotrona)

PERIODICAL: Atomnaya Energiya, 1958, Vol 4, Nr 5, pp. 471-474 (USSR)

ABSTRACT: By aid of a collecting chamber with a volume of 7,51 l-equipped with a cylindrical aluminium counting tube (thickness of the wall 150 μ) as detector, the concentration of the radioactive gases in the air is measured by their β-activities. The air present at the site of the 680 MeV synchrocyclotron of the United Institute of Nuclear Physics and its activity during the operation of the apparatus is measured. The following measuring results were obtained:

Isotope	Relative yield	
	Protons leave the apparatus	Neutrons leave the apparatus
O^{15}	0,12	2,7
N^{13}	0,06	0,31
C^{11}	0,06	0,46

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Activation of the Air by Radiation From a Synchrocyclotron 89-4-5-13/26

A^{41}	-	0,04
F^{18}	$3.1o^{-4}$	-

With 66o MeV-protons and at a proton-intensity of $\sim 1o^{1o}$ p/sec the air in the neighborhood of the tube window has an activity of less than $3.1o^{-8}$ C/l.
With neutrons which originate in the charge exchange of protons on beryllium the dose at the same place amounts to about $\sim 1 \cdot 1o^{-8}$ C/l.
A control measurement in the air exhaust canal of the building in which the apparatus is set up, showed, that the exhaust air is practically not active and that there is no danger for the staff of the adjoining laboratories.
There are 3 figures and 1 table.

SUBMITTED: June 21, 1957

AVAILABLE: Library of Congress

Card 2/2

1. Air--Radioactivation analysis 2. Radioactive gases--Measurement
3. Synchrocyclotrons--Radiation effects

AUTHORS: Kuznetsova, M.Ya., Mekhedov, V.N., Rybakov, V.N., Khalkin, V.A. SOV/89-4-6-12/30

TITLE: Light Tellurium Isotopes (Legkiye izotopy tellura)

PERIODICAL: Atomnaya energiya, 1958, Vol 4, Nr 6, pp 583-583 (USSR)

ABSTRACT: The mass numbers of light tellurium isotopes were experimentally determined ($A < 118$) together with their decay characteristics on the basis of subsidiary substances.
An antimony target is bombarded with protons of the synchro-cyclotron, and the activities of various chemical fractions are measured (the process of analysis is described).
The following determinations were carried out:

Te^{121}: $T_{1/2} \sim 17$ d
$Te^{118} + Te^{119}$: $T_{1/2} \sim 6$ d
Te^{117}: $T_{1/2} \sim 1.7$ h; β^+: 2.7 MeV; x-rays = 75%
Te^{116}: $T_{1/2} = 2.5$ h
Sb^{116}: K-capture 10%.

There are 7 references, 2 of which are Soviet.

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Light Tellurium Isotopes SOV/ 89-4-6-12/30

SUBMITTED: December 11, 1957

1. Tellurium isotopes (Radioactive)--Decay 2. Tellurium isotopes (Radioactive)--Masses 3. Tellurium isotopes (Radioactive)--Atomic weight 4. Proton bombardment--Applications

Card 2/2

AUTHORS: Kuznetsova, M. ..a., Mekhedov, V. N., Khalkin, V. A. SOV/56-34-5 ../6

TITLE: An Investigation of (p.pxn)-Reactions on Iodine (Issledovaniye (p.pxn)-reaktsiy na yode)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 5, pp. 1096-1100 (USSR)

ABSTRACT: This paper discusses the results of the investigation of (p.pxn)-reactions on iodine. The protons used for the bombardment had energies of from 100 to 660 MeV. For these experiments KJ specimens with a weight of 0,1 g were used. For the last experiments of this series specimens of elementary iodine (0,1-0,5 g) were used. Ag J-targets were used for these measurements. The cross-sections of the production of light radioactive iodine isotopes by bombarding J^{127} by protons of various energies are given in a table. In the last two columns of this table the total cross sections of the production of all iodine isotopes and the average numbers of the particles emitted during reactions of the type (p.pxn) are given. These average numbers are found by averaging over the cross sections. From these results one may derive the following results: The

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An investigation of (p,pxn)-reactions on iodine SOV/56-34-5-7/61

energy dependence of the cross sections of the productions is the same for nearly any isotope. The cross sections of the reactions vary but little within the energy range of 300-660 MeV and increase at lower energies. The total cross section for 100 MeV protons is three times greater than in the range 300-660 MeV. At any proton energy the isotope J^{126} has the greatest yield. The yields of the other nuclei decrease gradually with increasing x. However, the cross section of the production of J^{127} is greater than the cross sections of the neighboring nuclei and oscillates considerably when the energy of the particles changes. Available experimental results are, however, not sufficient for the interpretation of these oscillations. The yield of the reaction (p,P 7 n) is the smallest and depends only little on proton energy. Besides the ejection of nucleons there is also an "evaporation" (isparenlye) of particles, especially for the light iodine isotopes. The results of this paper agree satisfactorily with those of other papers. The greater the atomic number of the target, the greater the relative cross sections of the production of light isotopes. The observed energy dependence of the reactions (p,pn) and (p,p2n) may be explained by

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An Investigation of (n,txn)-reactions on Iodine SOV/56-34-4-7/61

The energy dependence of the cross sections of the elementary elastic nucleon-nucleon scatterings. There are 2 figures, 2 tables, and 18 references, 6 of which are Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (United Institute of Nuclear [illegible])

SUBMITTED: December 7, 1957

1.Iodine--Bombardment 2.Proton bombardment--Analysis
3.Proton cross sections 4.Isotopes--Production

Card 3/3

AUTHORS: Kurchatov, B. V., Mekhedov, V. N., SOV/56-35-1-7/59
Chistyakov, L. V., Kuznetsova, M. Ya., Borisova, N. I., Solov'yev, V. G.

TITLE: Secondary Nuclear Reactions in Bismuth and Lead During Bombardment by Protons of High Energy (Vtorichnyye yadernyye reaktsii na vismute i svintse pri bombardirovke protonami vysokikh energiy)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 1, pp 56 - 63 (USSR)

ABSTRACT: In the present paper experiments are described which had already been carried out in 1951 - 1952, the results and evaluations of which are, however, published only now. Bi(Z=83) and Pb(Z=82) was bombarded with protons of energies of from 180 to 480 MeV, and astatine isotopes (Z=85) were obtained, the production of which was investigated by a radiochemical method. With the exception of At^{211}, which was also obtained from lead, - $Pb^{208}(Li,kn)At^{211}$ -, it was possible to obtain all astatine isotopes from bismuth. $\sigma(A^{211}) = 6.10^{-29} cm^2$,

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$\sigma(A^{210}) = 2.10^{-29} cm^2$. The At-isotopes found are nearly all α-active. At^{203}(α,K):T = 7 min, At^{204}(K):T= 25 min; At^{205}(α,K):T = 25 min; At^{206}(K):T = 2,5 h; At^{207}(α,K 90%): :T = 2 h; At^{208}(K):T = 6,3 h; At^{209}(α,K 95%):T = 5,5 h; At^{210}(K):T = 8,3 h; (For the α-activity of Po^{210} T = 140 d); At^{211}(α,K 60%):T = 7,5 h. The production cross section of At^{211} in lead was $\sim 10^{-31}$ cm. The authors endeavored to explain the phenomena observed by assuming them to be the result of a secondary reaction of the capture of fission products (α-particles or Li-nuclei). The production of light astatine isotopes might be explained by the capture of high-energy protons with a following emission of π^- -mesons and several neutrons. The cross section for the production of α-particles with E $>$ 20 MeV from bismuth irradiated with 480 MeV protons is determined from the astatine yield as amounting to (5 to 6). $10^{-25} cm^2$. (Perfilov and Ostroumov (Ref 11) obtained (1,5 ÷ 1,6).10^{-25} cm^2.) In conclusion Professors B.M.Pontekorvo and I.Ya.

Secondary Nuclear Reactions in Bismuth and Lead During Bombardment by Protons of High Energy SOV/56-35-1-7/59

Pomeranchuk are thanked for their advice and discussions. There are 2 figures, 4 tables, and 12 references, 2 of which are Soviet.

SUBMITTED: February 20, 1958

Card 3/3

21(7), 21(9)

AUTHORS: Kuznetsov, V. V., Mekhedov, V. N. SOV/56-35-3-5,

TITLE: The Formation of Tritium in Metals Under the Action of 120-660 MeV Protons (Obrazovaniye tritiya v metallakh pod deystviyem protonov s energiyey 120-660 MeV)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 3, pp 587 - 591 (USSR)

ABSTRACT: It was the purpose of the present paper to supplement the data published in other papers (Refs 1-6) as well as to obtain new material concerning the formation of tritium in metals. Samples having the dimensions 2.6.15 mm were subjected to a proton beam of the synchrocyclotron. (Duration of irradiation: 2-5 minutes; intensity: 10^{11} - 10^{12} protons/sec). The tritium content in the irradiated target was determined by means of a "vacuum system" (Fig 1). This device consists of a system of tubes and containers in which pressure is low; the sample, the tritium content of which is to be determined, is melted in a 140 cm^3 quartz tube for 1,5 to 2 hours at a temperature of 900-1050°C in a

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The Formation of Tritium in Metals Under the Action of [illegible] 1
120-660 MeV Protons

hydrogen atmosphere at a pressure of 50 torr), on which occasion about 90% of the tritium escapes from the sample. A Geiger counter with a mica [illegible] 40 mm thickness is used as a recording device. The rate of the following materials were investigated: Al, Mg, Cu, Zn, Ag, Cd, (Fe), Pb, Sb, Au, Sn, Bi. The results obtained by the experiments (average cross section at E_p = 120, 200, 300, 450, 500, 550, 600 and [illegible] MeV and the corresponding number of tests) are [illegible] in a table. Figure 2 shows the dependence of σ_{H^3} on the atomic weight of the target material at 660 and [illegible] MeV (slightly ascending straight line). Figure 3 shows the dependence of the H^3-production cross section in Al, Pb, and Fe on the proton energy. The results of measurements are discussed. Finally, the authors thank V.A.Khalkin, M.Ya.Kuznetsova, and V.I.S[illegible] for their assistance and Yu.D.Prokoshkin for his valuable comments. There are 3 figures, 1 table, and 11 references, 1 of which is Soviet.

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The Formation of Tritium in Metals Under the Action of 120-660 MeV Protons SOV/56-35-3-57

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (United Institute of Nuclear Research)

SUBMITTED: April 2, 1958

Card 3/3

21(7) SOV/56-37-2-6/56

AUTHORS: Borisova, N. I., Kuznetsova, M. Ya., Kurchatova, L. N., Mekhedov, V. N., Chistyakov, L. V.

TITLE: Recoil Nuclei in the Disintegration of Silver by Fast Protons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 2(8), pp 366-373 (USSR)

ABSTRACT: In the present paper several experiments carried out in the years 1951/52 were at first discussed, which aimed at the direct determination of the ranges and angular distributions of the recoil nuclei of some disintegration products of silver (cf. Ref 7). Figure 1 shows the special containers used for the investigation of angular and energy distribution. The targets used were silver foils (0.5 mg/cm^2, impurities: Mg, Si, Fe, Al, Pb $< 10^{-3}$%, Au $< 10^{-3}$%) which were irradiated by protons (particle current $\sim 0.1\ \mu$a). The following was investigated: $Ag^{103} + Ag^{104}(\beta^+,K)$, T = 70 min; $Ag^{106}(K)$, T = 8 d; $Zr^{89}(\beta^+,K)$, T = 80 h; $Nb^{90}(\beta^+,K)$, T = 16 h; $Rb^{81} + Rb^{82}(\beta^+,K)$, T = 6 h, and

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Recoil Nuclei in the Disintegration of Silver by Fast Protons

$Se^{73}(\beta^+,K)$, T = 6.7 h . The angular distribution of the products was investigated with the exception of selenium for the three directions: forward, backward, and at 90° to the proton beam (forward: $5 \leqslant \theta \leqslant 58^\circ$, backward: $122 \leqslant \theta \leqslant 175^\circ$); the results obtained are shown in table 1. The result of the investigation of the angular distribution of the observed activities is shown by table 2; figure 2 shows the variation of the ratio of activities, stopped in the first and in the second film with θ. (Weak exponential increase with growing θ.) In the following, investigations of the energy distribution of the reaction products are described. The same isotopes and also Se^{73} for the angle $90 \pm 40^\circ$ were investigated. The directly measured number of nuclei of each element in % for various ranges is shown by figure 3. The errors in range-values may be explained by the thickness of the polystyrene film. With an increase of the range, the number of recoil nuclei decreases in the case of all elements; with a decreasing Z the range increases. In figure 4 the range - energy curve is given for polystyrene and silver; the polystyrene curve is considerably higher and has a steeper

Recoil Nuclei in the Disintegration of Silver by Fast Protons

slope than the silver curve. Figure 5 finally shows the energy distribution of the recoil nuclei at 90 ± 40°. Finally, there follows a discussion of the results with respect to a qualitative explanation of the distribution laws found. The results seem to confirm the mechanism of the Se, Rb, Zr, and Nb formation by evaporation of α-particles, protons and neutrons. In this connection table 3 is of great value, which gives the measured and calculated energies and particle numbers ($\bar{E}$ (n,p), $\bar{E}$ (n,p,α); α:p:n, etc.) for these isotopes. The authors finally thank B. V. Kurchatov and Professor B. T. Geylikman for their help and valuable remarks. There are 5 figures, 3 tables, and 21 references, 8 of which are Soviet.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: March 4, 1959

Card 3/3

AFANAS'YEV, V.P.; GOLOVINA, V.A.; KOMOCHKOV, M.M.; MEKHEDOV, V.N.; OGANESYAN, K.O.; ROZHKOV, V.Ye. [deceased]; ROZANOVA, A.M.

Dosimetric check. Med. rad. 5 no.1:6-12 Ja '60. (MIRA 15:3)
(RADIATION--DOSAGE)

21.2000

77252
SOV/89-8-2-17/30

AUTHORS: Komochkov, M. M., Mekhedov, V. N.

TITLE: Some Data on Radiation Distribution From the OIYaI Synchrocyclotron. Letter to the Editor

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 2, pp 152-153 (USSR)

ABSTRACT: Measurements were performed while producing neutrons by protons bombarding a beryllium target with up to 680 mev of energy and 0-0.3 μa of current in the outer orbit region. Detectors were placed in the plane of the accelerated protons. One of them served as an intensity monitor. Neutrons above 50 mev were detected by means of an ionization chamber registering fragments from bismuth fission. Fast protons were eliminated using 15-20 cm of lead shielding. The background of the aluminum-built chamber without the bismuth cover was 1.5%. Data were taken also by carbon counters, with a threshold around 20 mev, which permitted flux measurements in areas where the fission chamber was unable to work due to the action of electromagnetic fields of the

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accelerator. Figure 1 shows the results, using the following code: numerator - point index; denominator - particle flux in relative units. There is evident a sharp cone of particles which in the case of $E_n > 50$ mev has an angular spread of $29 \pm 1^{\circ}$. The authors also estimated, using the C counter, the flux of neutrons from the beryllium target in a collimated beam, 14 m from the target. They got a flux of 3 to $7 \cdot 10^4$ neutrons/$cm^2 \cdot sec$ for $E_n > 20$ mev neutrons. The authors computed that for every 10 protons of the circulating beam one neutron with $>$ 50 mev would appear outside the cyclotron chamber. Behind the shielding walls, where the intensity was low, the authors used for $E_n > 50$ mev the photoemulsion K-200. Neutrons with $E_n > 0.5$ mev were registered by means of a scintillation counter using a mixture of organic glass and zinc

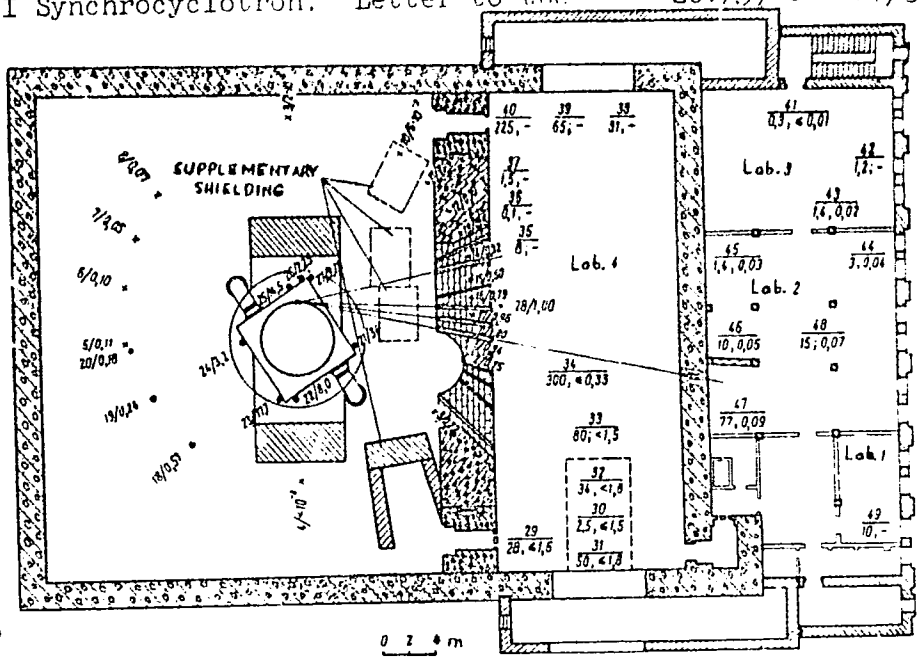
sulfide. The code to the right of the shield is: numerator - point number; first number in denominator - neutron flux with $E_n > 0.5$ mev; second number - intensity of γ-ray dose in μ R/sec. In laboratories 1, 2, and 3 the measurements were made under most unfavorable conditions--when two beams in full strength of 10^7 neutrons/sec were going through the laboratories. The authors also determined the level of radiations in the whole accelerator building, including the roof. A thickness of 41-43 cm of concrete would cut the neutron $E_n > 50$ mev flux to one-half. The authors concluded that the accelerator shielding was sufficient to secure the safety of the working personnel. In future constructions a more compact arrangement of shielding walls should be introduced to obtain the effect needed with less material. V. P. Dzhelepov helped and showed interest. There is 1 figure; and 2 Soviet references.

SUBMITTED: April 20, 1959

Card 3/4

Some Data on Radiation Distribution From the OIYaI Synchrocyclotron. Letter to the Editor

77252
SOV/89-8-2-17/30



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Caption for Fig. 1.

Fig. 1. Radiation distribution around 6-meter synchrocyclotron. x - Measurements utilizing bismuth chamber; o - measurements using carbon detectors.

84960

S/056/60/039/003/046/058/XX
B006/B070

24 6600

AUTHORS: Van Yun-yuy, Kuznetsov, V. V., Kuznetsova, M. Ya., Mekhedov, V. N., Khalkin, V. A.

TITLE: Investigation of Secondary Capture Reaction of Lithium Nuclei by Lead

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 3(9), pp. 527 - 535

TEXT: The present paper is a report on the radiochemical investigation of the formation of the astatine isotopes $_{85}At^{211,210,207}$ in the secondary reaction $_{82}Pb(Li,xn)_{85}At$ by bombarding lead with protons (80-660 Mev), deuterons (75-370 Mev) and alpha particles (210-810 Mev). The apparatus and method of measurement are described in Ref. 15. The lead targets (about 1 g) were enclosed in a quartz ampoule, and irradiated for 0.2-2 hours. For determining the yield, different thicknesses of lead foil were irradiated for 2-10 hours. The dependence of the astatine yield on the proton energy is given in Table 1:

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Investigation of Secondary Capture Reaction of Lithium Nuclei by Lead

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B006/B070

Proton Energy in Mev	Yield in μb At^{211}	At^{210}	At^{207}/At^{211}	Total Yield in μb
660	0.17	0.21	~1.3	~1.3
500	0.06	0.10	"	~0.35
340	0.03	0.08	"	~0.2
120	0.005	0.01	~1.1	~0.03
~80	~0.01	"	"	"

For E_p = 660 Mev, a case of At^{205} production was also recorded ($T_{1/2}$ = 25 min); At^{205}/At^{211} ~ 0.1. The yield of At^{211} as a function of the energy of the bombarding particles (α,p,d) is shown in Fig. 1. The highest yield (~0.3 μb) was obtained by bombardment with alpha particles, and this is only slightly dependent on the energy. When the alpha energy is high, At^{211} may be formed also by the alpha capture of Pb^{208} (and π^-n emission) or Pb^{207} (and π^- emission). The fraction of these reactions is, however, unimportant. Fig. 2 shows the At^{211} yield

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Investigation of Secondary Capture Reaction of Lithium Nuclei by Lead

S/056/60/039/003/046/058/XX
B006/B070

as a function of the target thickness. The yield increases monotonically from 0.03 to 0.3 mm, and remains constant with a further increase in thickness. In the discussion of the results, the authors compare the E_p dependence of the total production cross section of astatine isotopes from lead with that of iodine isotopes from tin (Fig. 3). An estimate of the energy spectra of the Li fragments and their production cross section from lead is made by a method suggested by B. V. Kurchatov et al. (Ref. 10). Assuming that Li^6, Li^7, and Li^8 have similar energy spectra, the spectrum may be described by $P(E)dE = \tau^{-2}(E-V)\exp(-(E-V)/\tau)dE$. The excitation functions of the most important production reactions of At isotopes by capture of Li^6 and Li^7 were calculated according to Jackson's method, and are represented in Fig. 4 ($\sigma = f(E_{Li})$). The ratio between the Li yields from lead was determined to be $Li^6:Li^7:Li^8 = 0.55:0.41:0.043$. The parameters V and τ from the spectrum formula are given in Table 2 for several yield ratios. The best agreement with the experiment is found for V = 6 - 10 Mev and τ = 10.5 - 11.5 Mev.

84960

Investigation of Secondary Capture Reaction of Lithium Nuclei by Lead

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Fig. 5 shows the Li spectrum for E > 30 Mev (V = 6 Mev, ≈11.5 Mev). From the astatine production B for a given proton energy and using the formula $B = N_0 \sigma^p_{Li} \sigma^{Li}_{At} \Delta l$, the production cross section of Li nuclei σ^p_{Li}, and the production cross section of At^{211} averaged over the energy is calculated to be $\sigma^p_{Li} = 3 - 4$ mb and $\sigma^{Li}_{At} \approx 0.1$ b. Δl denotes the half thickness of the Pb target in which the production of At^{211} begins to deviate from the constant value. The authors thank Ye. N. Sinotov, A. S. Karamyan, and A. A. Pleve for help, and B. V. Kurchatov for critical remarks. The spectroscopic determination of the lead impurities was carried out by M. Farafonov of GEOKhI. There are 5 figures, 2 tables, and 29 references: 13 Soviet, 12 US, 1 Dutch, 1 British, 1 Italian, and 1 Canadian.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: March 12, 1960

Card 4/4

BELYAYEV, B.N.; MAL'TSEVA, N.S.; MEKHEDOV, V.N.; MIN NAM BUK; SHIMCHAK, R.A.; SARANTSEVA, V.R., tekhn. red.

[Formation of At^{209} and At^{207} in the bombardment of Bi and Pb with high-energy protons] Obrazovanie At^{209} i At^{207} pri bombardirovke Bi i Pb protonami vysokikh energii. Dubna, Ob"edinennyi in-t iadernykh issledovanii, 1962. 9 p. (MIRA 15:6)
(Astatine—Isotopes) (Protons)

S/056/62/043/004/001/061
B102/B186

AUTHORS: Belyayev, B. N., Mal'tseva, N. S., Mekhedov, V. N., Kim Nam Buk, Shimchak, R. A.

TITLE: Formation of At^{209} and At^{207} isotopes on bombardment of bismuth and lead with high-energy protons

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 43, no. 4(10), 1962, 1129 - 1134

TEXT: The yields of the lightest astatine isotopes (At^{207}, ^{209}), formed through the capture of fragments impelled by more than 40 Mev, were studied in the course of radiochemical examinations of astatine formation reactions during the bombardment of Bi^{83} and Pb^{82} with high-energy protons (cf. ZhETF, 35, 56, 1958; 39, 230, 1960). Under the same experimental conditions as in preliminary studies, the synchrocyclotron of the OIYaI was used for proton irradiation at 120-660 Mev. The spectra were measured using an ionization-α-spectrometer with a grid and the relative yields were calculated from the height of the individual peaks. The astatine isotopes 207-211 are assumed

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S/056/62/043/004/001/001
B102/B136

Formation of At^{209} and ...

to form with a greater probability than obtained in previous investigations (ZhETF, 39, 527, 1960) in "secondary" capture reactions of superbarrier nuclei, such as He^3, He^4, and Li, which have themselves been formed multiple interactions of high-energy nucleons. There are 1 figure and 1 table.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: March 31, 1962

Table: Relative yields with respect to At^{211}.
Legend: (1) Target; (2) bombarding particle and its energy in Mev.

①	②	At^{208}	At^{209}	At^{210}	At^{207}
Bi	p, 660	0,81±0,08	0,72±0,06	0,40±0,04	0,51±0,04
	p, 660 [3]	0,82±0,12	—	—	—
	p, 120	0,98	0,64±0,06	~0,5	0,30±0,03
	p, 130 [2]	0,63±0,10	—	—	—
	p, 150 [4]	1,02±0,20	0,81±0,22	0,22±0,05	0,10±0,04
Pb	p, 660	—	1,43±0,43	—	0,61±0,18 (0,62±0,1[illegible])
	p, 200	—	1,31±0,28	—	0,28±0,[illegible] (0,56±0,2[illegible])
	d, 400	—	1,52±0,25	—	0,52±0,[illegible] (0,72±0,[illegible])
	α, 800	—	—	—	(0,71±0,[illegible])

Card 2/2

L 13622-63 EWT(m)/FCS(f)/BDS AFFTC/ASD

ACCESSION NR: AP3003100 S/0056/63/044/006/1800/1805

AUTHOR: Wang, Ch'uan-p'eng; Mekhedov, V. N.; Ry*bakov, V. N.; Shimchak, R. A.

TITLE: Search for secondary deuterium and tritium capture reactions

SOURCE: Zhurnal eksper. i teor. fiziki, v. 44, no. 6, 1963, 1800-1805

TOPIC TAGS: heavy arsenic isotope yield, deuterium capture, tritium capture

ABSTRACT: The yields of heavy arsenic isotopes produced by bombarding germanium with 120, 300, 480, and 660 MeV protons are measured by a radiochemical method. With increase of proton energy, all yields decrease monotonically, with values ranging from 3.4--1.0, 1.0--0.38, and 0.13--0.035 mb for As sup 74, 76, and 77, respectively. The main interest was in the study of reactions involving superbarrier deuterium and tritium capture reactions. The primary (p,xn) reactions are apparently the mechanism for the production of As sup 74 and As sup 76. The isotope As sup 77 is probably formed as a result of capture of superbarrier tritium nuclei. The origin of As sup 77 is more complicated. At low proton energies (120 and 300 Mev) it is essentially obtained via secondary deuterium and tritium nuclear capture reactions. At higher proton energies the overwhelming part of the isotope is apparently obtained via secondary Alpha-particle capture

Card 1/2

L 13622-63

ACCESSION NR: AP3003100

3

reactions. "The authors thank B. V. Kurchatov and V. M. Mal'tsev for valuable remarks." Orig. art. has: 4 formulas and 1 table.

ASSOCIATION: Ob"yedinennyy institut yaderny*kh issledovaniy (Joint Institute for Nuclear Research)

SUBMITTED: 07Jan63 DATE ACQ: 23Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 008 OTHER: 020

Card 2/2

MAL'TSEVA, N.S.; MEKHEDOV, V.N.; RYBAKOV, V.N.

Secondary reactions of astatine production in Bi and Pb bombardment by 3-10 Bev. protons. Zhur. eksp. i teor. fiz. 45 no.4:852-856 O '63. (MIRA 16:11)

1. Ob"yedinennyy institut yadernykh issledovaniy.

L 45223-65 EWT(m) Peb DIAAP
ACCESSION NR: AP5009823 UR/0367/65/001/002/0189/0190

AUTHORS: Zin Khe-sun, Mal'tseva, N. S.; Mekhedov, V. N.; Rybakov, V. N. 13 12 B

TITLE: The K-capture fraction of Ge-66, Ge-69, and As-72

SOURCE: Yadernaya fizika, v. 1, no. 2, 1965, 189-190

TOPIC TAGS: germanium, arsenic, K capture fraction, spallation reaction, positron decay, neutron deficient isotope 19

ABSTRACT: Since there are no published data on the K-capture probabilities of Ge^{66} and As^{72}, the authors determined these quantities experimentally for several neutron-deficient isotopes of gallium, germanium, and arsenic fractions obtained in spallation reactions. The probability ratios of K capture and β^+ decay were obtained with a magnetic analyzer by measuring the relative intensities and the decay curves of the corpuscular and x-radiation. The analyzer was

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L 45223-65
ACCESSION NR: AP5009823

described by one of the authors earlier (Mekhedov, with M. Ya. Kuznetsova, Izv. AN SSSR ser. fiz. v. 21, 1020, 1957). Measurements with the isotopes Cu^{64}, Ga^{66}, Ga^{68}, Ge^{68}, As^{71}, and As^{74}, the K-capture fraction of which is well known, were used as the control. The K-capture fraction of Ge^{66}, Ge^{69}, and As^{72} were found to be 48 ± 20, 55 ± 10, and 20 ± 10%, respectively, and agreed with the published data within the limits of experimental error. Orig. art. has: 1 table.

ASSOCIATION: Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: 28Jul64 ENCL: 00 SUB CODE: NP

NR REF SOV: 002 OTHER: 002

Card 2/2

MAL'TSEVA, N.S.; MEKHEDOV, V.N.

Formation of At^{205} and At^{203} in the bombardment of cadmium by 400 Mev protons. Radiokhimiia 7 no.3:341-345 '65. (MIRA 18:7)

L 30031-66 EWT(m)

ACC NR: AP6020114 SOURCE CODE: UR/0367/66/003/002/0313/0315

AUTHOR: Mekhedov, V. N.; Rybakov, V. N.; Sorokin, A. A.; Shtal', M. Z. 37

ORG: Joint Institute for Nuclear Research (Ob"yedinennyy institut yadernykh issledovaniy); Institute of Nuclear Physics, Moscow State University (Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta) B

TITLE: Ratio of Te isomer yields in the disintegration of I and Cs by 660 MeV protons

SOURCE: Yadernaya fizika, v. 3, no. 2, 1966, 313-315

TOPIC TAGS: isomer, tellurium, proton, nuclear spin, probability

ABSTRACT: The ratios of the probabilities for the creation of high and low-spin states have been measured for Te^{119} and Te^{121} isomers, obtained in the disintegration of Cs and I by 660 MeV protons. For Te^{119} these ratios are 0.4±0.03 and 0.77±0.07; and for Te^{121}, 0.65±0.07 and 1.1±0.13. Orig. art. has: 1 figure and 1 table. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 20 / SUBM DATE: 20Jul65 / ORIG REF: 006 / OTH REF: 011

Card 1/1 Jo

POGODAYEV, K.I.; MEKHEDOVA, A.Ya.; TUROVA, N.F.

State of some metabolic processes in the brain in protective inhibition; medicinal and natural sleep, postparoxysmal comatose state. Trudy 1-go MMI 26:88-99 '63.
(MIRA 17:2)

MEKHEDOVA, A., POGODAYEV, K.

"The Intensification of the Restoration of Cerebral Albumins 1 to 2 days after a 3-days Artificial Sleep". Paper submitted at 2nd Conference on Biochemistry of the Nervous System, AS ~~USSR~~ Ukr SSR, ~~12~~-16 Feb 1957, Kiev.

Translation 1122802

MEKHEDOVA, A.Ya.

Condition of respiration processes in the animal brain following sleep induced by amobarbital sodium with vitamins employed to reduce toxicity of the narcotic. Trudy Inst. vys. nerv. deiat. Ser. fiziol. 3:227-231 '59. (MIRA 12:3)

1. Iz kabineta biokhimii mozga, zav. - K.I. Pogodzyev.
(RESPIRATION)(SLEEP)(VITAMINS)

PAVLOVSKAYA, A.A.; MEKHEDOVA, A.Ya.; RUDENKO, L.P.

Interaction of conditioned and unconditioned secretory food reflexes. Trudy Inst. vys. nerv. deiat. Ser. fiziol. 5:90-102 '60. (MIRA 13:10)

1. Iz Laboratorii nervnoy deyatel'nosti zhivotnykh (zav. - A.A. Pavlovskaya) instituta vysshey nervnoy deyatel'nosti.
(REFLEXES)

MEKHEDOVA, A.Ya.

Influence of meratran in small doses on the higher nervous activity of dogs; preliminary report. Trudy Inst. vys. nerv. deiat. Ser. fiziol. 5:231-237 '60. (MIRA 13:10)

1. Iz Laboratorii vysshey nervnoy deyatel'nosti zhivotnykh (zav. - A.A. Pavlovskaya) instituta vysshey nervnoy deyatel'nosti.
(MERATRAN) (NERVOUS SYSTEM)

MEKHEDOVA, A.Ya.

Effect of piridrol on the higher nervous activity of dogs.
Trudy Inst. vys. nerv. deiat. Ser. fiziol. 6:300-307 '61.
(MIRA 14:12)

1. Iz Laboratorii vysshey nervnoy deyatel'nosti zhivotnykh, zav. - A.A.Pavlovskaya.
(PIPERIDINEMETHANOL) (CONDITIONED RESPONSE)

MEKHEDOVA, A.Ya.

Effect of piridrol on the higher nervous activity of dogs. Report No.2: Results of the use of piridrol during neurotic state. Trudy Inst.vys.nerv.deiat. Ser.fiziol. 7:223-230 '62. (MIRA 16:2)

(PIPERIDINEMETHANOL) (CONDITIONED RESPONSE)

MEKHEDOVA, A.Ya.

Effect of pyridol on the conditioned reflex activity in dogs.
Zhur. nevr. i psikh. vol. 64 no.5:771-777 '64. (MIRA 17:7)

1. Institut vysshey nervnoy deyatel'nosti i neyrofiziologii (direktor - prof.E.A.Asratyan) AN SSSR, Moskva.

L 36509-65

ACCESSION NR: AP5010013 UR/0246/64/064/005/0771/0777

13
B

AUTHOR: Mekhedova, A. Ya.

TITLE: Effect of pyridrole on canine conditioned reflex activity

SOURCE: Zhurnal nevropatologii i psikhiatrii, v. 64, no. 5, 1964, 771-777

TOPIC TAGS: nervous system, experiment, animal, nervous system drug, conditioned reflex

Abstract: The effect of pyridrole on conditioned reflex activity of dogs belonging to different typological groups, in the normal state and in experimental neuroses, is studied in this report. The work was done in five animals following the method of food secretary conditioned reflexes. The dogs Beliy, Miki, and Chizhik belong to the strong type. However, the steadiness of the main nervous processes in the dogs differed; the most steady proved to be Chizhik, and less steady, with decided predominance of the excitatory process over the inhibitory, Belyy and Miki. Ryzhik was an intermediate type, and Anchar, a weak type. In all the animals a stereotype was developed, consisting of positive conditioned reflexes to auditory and visual stimuli and differentiation to each of these. Pyridrole was given per os one hour before

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ACCESSION NR: AP5010013 O

the experiments on conditioned reflexes. Investigations were begun on the four animals (Beliy, Chizhik, Ryzhik, and Miki) with a study of the effect of pyridrole on normal conditioned reflex activity. Pyridrole was tested in dosages from 0.0005 to 1 microgram/kilogram of body weight. Its use in dosages of 0.00005-0.00001 milligram/kilogram had no effect on conditioned reflex activity of experimental animals. At higher dosages, the nature of the changes depended on the size of the dose. Thus, at dosages of 0.008 milligram/kilogram for Beliy and 0.003 milligram/kilogram for Ryzhik pyridrole, resulted in a small drop in positive conditioned reflexes. At a considerably higher dosage (0.05 milligram/kilogram) the chemical promoted in the same dogs enhanced conditioned reflexes. Increasing the dosage to 0.25-0.4 milligram/kilogram again brought about a decrease in reflexes and also disturbance of conditioned-reflex activity. The effect of pyridrole on the results of the functional test with hunger were more pronounced in animals of the intermediate and weak types. For example, daily fasting, both isolated and in combination with pyridrole in a dosage of 0.003 milligram/kilogram, in the dog Ryzhik, was accompanied by reduced conditioned reflexes. Comparison of the changes in the magnitudes of the conditioned reflexes and the dynamics of functional tests indicated that pyridrole in different dosages, acting on the intensity of the stimulating and inhibitory processes, results in a change of their ratios toward the

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L 36509-65

ACCESSION NR: AP5010013

side of predominance of one and then the other. In addition, at a dosage promoting increased conditioned reflexes, the substance brought about enhanced activity of neural processes. Orig. art. has: 4 graphs, 2 tables.

ASSOCIATION: Institut vysshey nervnoy deyatel'nosti i neyrofiziologii AN SSSR, Moscow (Institute of Higher Nervous Activity and Neurophysiology, AN SSSR)

SUBMITTED: 020ct63 ENCL: 00 SUB CODE: LS

NO REF SOV: 007 OTHER: 003 JPRS

Card 3/3

MEKHENDZI, Yu A.

PHASE I BOOK EXPLOITATION 1216

Soveshchaniye po teorii liteynykh protsessov. 2d, Moscow, 1956

Zatverdevaniye metallov; trudy soveshchaniya... (Solidification of Metals; Transactions of the Second Conference on the Theory of Foundry Processes) Moscow, Mashgiz, 1958. 532 p. 3,500 copies printed.

Sponsoring Agencies: AN SSSR. Institut mashinovedeniya. Komissiya po tekhnologii mashinostroyeniya; and AN SSSR. Institut metallurgii.

Ed. (Title page): Gulyayev, B.B., Doctor of Technical Sciences, Professor; Ed. (Inside book): Novikov, P.G., Candidate of Technical Sciences; Ed. of Publishing House: Chernysheva, N.P.; Tech. Ed.: Uvarova, A.F.; Managing Ed. for Literature on Heavy Machine Building: Golovin, S.Ya., Engineer.

PURPOSE: This book is intended for a wide circle of engineers, technicians, and scientists working in the fields of general metallurgy, physical metallurgy, and the production of castings.

Card 1/8

COVERAGE: The book is a collection of 29 papers concerned with the determination of fixed patterns of metal solidification and also with the determination of favorable conditions for the production of sound castings. The authors discuss heat phenomena in metallic and sand molds, properties of mold materials, conditions of solidification of castings in shell molds, kinetics of the warming-up of porous bodies (molds), effect of alloy composition on the solidification process, conditions for the development of a zonal structure and of chemical heterogeneity of castings, and other matters of current interest. There are also discussions of the use of model testing and radioactive isotopes for studying solidification. No personalities are mentioned.

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Gulyayev, B.B., Doctor of Technical Sciences, Professor.
Present State of Investigations of Metal-solidification Processes 5

Solidification of Metals (Cont.) 1216

I. HEAT-TRANSFER PROCESSES IN THE SOLIDIFICATION OF CASTINGS

Berg, P.P. Principles for Constructing Production Formulas for Evaluating Heat Processes in the Casting Mold 33

Girshovich, N.G., Doctor of Technical Sciences, Professor; and Yu.A. Mekhendzi, Doctor of Technical Sciences, Professor. Solidification of Castings 39

Veynik, A.I., Doctor of Technical Sciences, Professor. Investigation of Heat Phenomena in Metallic Molds and Their Effect on Solidification Processes 91

Gulyayev, B.B., Doctor of Technical Sciences, Professor; and O.N. Magnitskiy, Engineer. Investigation of the Effect of Alloy Composition on the Kinetics of the Solidification of Castings 108

Skvortsov, A.A., Candidate of Technical Sciences, Docent. On the Solution of the Problem of the Solidification of Metals Within a Temperature Rang. 124

Card 3/8

S/137/62/000/012/089/149
A006/A101

AUTHORS: Elijev, N. E., Meherremova, F. G., Musazade, M. M.

TITLE: Determining the hardness of mandrels of a piercing mill

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 35, abstract 12D285 ("Izv. AN AzerbSSR, Ser. fiz. matem i tekhn. n.", 1961, no. 2, 55 - 59, Azerb., Russian summary)

TEXT: The Brinell method was employed to determine the hardness of piercing mill 12 XH3A (12KhNZA) steel mandrels after 2, 13, 14 and 82 passes. To determine the effect of temperature on hardness, the investigated specimens were annealed for 5 hours at 200, 400 and 600°C. Curves were plotted showing the distribution of hardness on the mandrel surfaces and along their axes. It was established that with a greater number of passes the hardness of the mandrels increases; the maximum hardness value corresponds to the pressing section of the mandrel; with higher annealing temperatures the hardness on all sections of the mandrel decreases gradually.

I. Musorina

[Abstracter's note: Complete translation]

Card 1/1

MEKHEY, Yu.G.

Determination of magnetic moments for a group of ellipsoid. magnets. Trudy inst. kom. stand., mer i izm. prib. no.43:21-27 '60. (MIRA 14:7)

(Magnetic measurements)

MEKHEY, Yu.G.

Use of a quartz magnetometer in testing Helmholtz coils. Trudy inst. Kom.stand., mer i izm.prib. no.72:85-93 '63. (MIRA 16:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni Mendeleyeva.
(Magnetometer) (Electric coils--Testing)

MEKHEYS, I. A.

Teeth - Diseases

Study of the condition of the dental pulp in pulpitis; Stomatologiia no. 1, 1952

Monthly List of Russian Accessions, Library of Congress, May 1952. UNCLASSIFIED.

MEKHTIYEV, A.G., klinicheskiy ordinator.

Incidence of throat infections in workers at the Kirov Plant (Baku). Azerb.med.zhur. no.5:89-91 My '58 (MIRA 11:6)

1. Iz kafedry vnutrennikh bolezney (ispolnyayushchiy obyazannosti zav. - prof. S.M. Gusman) i laringologicheskoy kliniki (zav. - prof. M.D. Kazhlayev) Azerbaydzhanskogo gosudarstvennogo instituta. usovershenstvovaniya vrachey (direktor - M.I. Aliyev)
(BAKU--THROAT--DISEASES)

MEKHTIYEV, M.M.; ARABIDZE, G.G.; KRYLOV, V.S.

Methodology of studying the pathology of the renal arteries in arterial hypertension. Ter. arkh. 35 no.4:40-44 Ap'63 (MIRA 17:1)

1. Iz gospital'noy khirurgicheskoy kliniki (dir. deystvitel'nyy chlen AMN SSSR prof. B.V. Petrovskiy) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M.Sechenova i Instituta terapii (dir. - deystvitel'nyy chlen AMN SSSR prof. A.L.Myasnikov) AMN SSSR.

NEGREYEV, V.F., prof.; TRIFEL', M.S., kand. tekhn. nauk; MEKHMANDAROV, S.A., inzh.; KHANLAROVA, A.G., inzh.

Increasing the effectiveness of corrosion protection of pipelines. Stroi. truboprov. 3 no.7:4-7 Jl '58. (MIRA 12:1)
(Protective coatings) (Pipelines)

NEGREYEV, V.F.; KHANLAROVA, A.G.; SHANINA, T.M.; MEKHMANDAROV, S.A.; KYAZIMOV, A.M.

Corrosion of steel in sea water. Azerb.neft.khoz. 37 no.10: 43-45 O '58. (MIRA 12:2)
(Steel--Corrosion)

MEKHMANDAROV, S. A., Cand Tech Sci -- (diss) "Some problems in the protection of submerged turbine cables from corrosion." Baku, 1960. 18 pp; (Ministry of Higher and Secondary Specialist Education USSR, Azerbaydzhan Order of Labor, Red Banner Institute of Petroleum and Chemistry im M. Azizbekov); 220 copies; free; (KL, 19-60, 135)

PHASE I BOOK EXPLOITATION SOV/4674

Mekhmandarov, Sabir Adil ogly, Vsevolod Fedorovich Negreyev, and Mark Solomonovich Trifel'

Zashchita podvodnykh truboprovodov ot korrozii (Protection of Underwater Pipelines Against Corrosion) Baku, Azerneftneshr, 1960. 323 p. Errata slip inserted. 600 copies printed.

Ed.: A.G. Khanlarova; Ed. of Publishing House: T.B. Al'tman.

PURPOSE: This book is intended for engineering personnel engaged in the design, construction and operation of underwater pipelines and their corresponding protective installations.

COVERAGE: The book describes methods and installations used in the protection of underwater pipelines against corrosion. Data are also given on the design, construction, operation and control of electrochemical protective installations. The authors discuss the corrosion of steel pipelines in sea water, and anticorrosion protective coatings and cathode protection. Methods and techniques in laying

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Protection of Underwater Pipelines (Cont.) SOV/4674

marine pipelines are described. The authors thank the staff and personnel of the otdel korrozii instituta "Gipromorneft'" [Section of Corrosion of the State Design and Planning Scientific Research Institute of Off-Shore Oil]. No personalities are mentioned. There are 151 references: 141 Soviet, 8 English, and 2 German.

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S/095/60/000/009/001/005
A/053/A026

AUTHORS: Negreyev, V.F.; Trifel', M.S.; Khanlarova, A.G.; Mekhmandarov, S.A.; Znaychenko, S.G.; Mugbilov, M.F.

TITLE: Experience Gained from the Use of Plastic Covers

PERIODICAL: Stroitel'stvo truboprovodov, 1960, No. 9, pp. 9 - 13

TEXT: For the protection of underground pipes polyethylene and polyvinyl chloride plastics have been employed. They must be applied in thick layers to be effective. The Institute Gipromorneft' has developed in 1958 a cover made from polyamide tape ПК-4 (PK-4) which has been tested in practice by Azneftezavodstroy Trust on the main pipeline Karadag - Severnaya GRS in 1959 and by Zakpromstroy Trust on the gas-distributing network in the city of Sumgait. In both instances tests were carried out in highly-aggressive soil. Pipelines were provided with both plastic covers and electro-chemical protection, while arrangements for inspection at various points were also made. Results of tests with various kinds of cement and methods of application are shown in Tables 1 and 2. Poor adhesion occurred from layers of cement being too thin or in the event of cements being made with volatile solvents. This causes the formation of blisters and hollow

Card 1/3

Experience Gained From the Use of Plastic Covers

places under the cover, into which moisture is being drawn, resulting in corrosion of the metal. In the case of polyisobutylene cement the durability of the tape suffers under the effect of aromatic hydrocarbons. The strength of the tape improves upon application of cement made from petrolatum, the reason for the improvement being a reorientation of the molecules. If using thick layers (up to 1 mm) of gun oil, the cover remains unchanged for a long time. The tape retains its elasticity and other mechanical properties; there are also no traces of corrosion on the metal. Photo 1 and 2 show to what extent cover and pipe metal have been preserved after having been kept a year and a half in saline soil. Specific resistance of the cover, as can be seen from Table 1 after 2 years of service, is 12,000 to 180,000 ohms. Various kinds of cement on a resin or oil product base, can be used for attaching plastics to pipes or fastening tape together. It is important that the cement retains its initial properties and does not change its structure after some time; it also should not contain any solvents (especially no aromatic ones) liable to cause swelling under the tape. Viscosity of the cement should be sufficient to prevent the tape from detaching itself from the metal. Petrolatum with a small addition of rubber makes a good cement. The prime coat should always be followed by a layer of lubricant 1 mm thick. Experience shows that plastic covers result in an economy of 11.5 - 13% in cost of material, while

Experience Gained From the Use of Plastic Covers

increasing labor efficiency. Combined methods are considered, using bitumen prime coating, followed by a thin layer of petrolatum cement, over which 2 layers of plastic tape are applied with 4 cm overlapping. The work in question can be done on the site or part of it in the workshop. The machine UMR-1 (IML-1) used for mechanized work on the site for making bitumen covers can easily be adapted to applying petrolatum cement and plastic tape. On leaving the insulating machine the finished insulated pipeline section is lowered into the trench. The rules of Gosstroy USSR so far do not provide for the making of plastic covers. There are 2 photographs, 3 tables and 7 references: 6 Soviet, 1 English.

Card 3/3

TRIFEL', M.S.; MEKHMANDAROV, S.A.; DANILYAK, B.M.

Cathodic protection of steel structures in seawater by means of pulsating currents. Gaz. delo no.9:31-34 '63.

Behavior of steel in seawater in the polarization of alternating and pulse currents. Ibid.:34-36

(MIRA 17:12)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy dlya dobychi nefti s morskogo dna.

L 51428-65 EWT(m)/EPF(c)/EWG(v)/EWA(d)/EPR/EPA(w)-2/EWP(j)/EWP(t)/EWP(k)/EWP(b) Pc-4/Pab-10/Pe-5/Pr-4/Ps-4 IJP(c) JD/WW/WB/RM

ACCESSION NR: AP5015500 UR/0286/65/000/008/0030/0030
621.315.328

AUTHOR: Kogen, V. B.; Avanesyan, A. M.; Khanlarova, A. G.-k.; Trifel', M. S.; Mekhmandarov, S. A.-o.; Shakov, V. I.; Babayev, M. A.; Dayenzon, Ye. B.; Ioannisyan, S. A.

TITLE: Corrosion resistant steel-aluminum wire. Class 21, No. 170094

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 8, 1965, 30

TOPIC TAGS: corrosion protection, aluminum, steel

ABSTRACT: This Author's Certificate introduces a corrosion resistant steel-aluminum wire containing a steel core covered with an insulating material laid over with a cable of aluminum wires. The operational characteristics are improved by using transparent plastic for the insulation material and soaking the entire wire in a solution which contains 95% cersin and 5% petrolatum.

ASSOCIATION: none

SUBMITTED: 10Dec62 ENCL: 00 SUB CODE: IE, MM

Card 1/2

ACCESSION NR: AP4018053 S/0079/64/034/002/0394/0396

AUTHOR: Shikhiyev, I. A.; Guseynzade, B. M.; Mekhmandarova, N. T.; Aslanov, I. A.

TITLE: Research in the area of synthesis and conversion of unsaturated silicon germanium organic compounds
17. Synthesis and some conversions of silicon and germanium organic alcohols of the diacetylene series

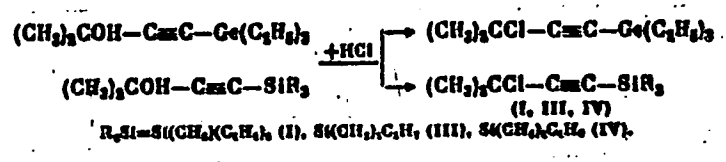
SOURCE: Zhurnal obshchey khimii, v. 34, no. 2, 1964, 394-396

TOPIC TAGS: silicon germanium, synthesis unsaturated silicon germanium, conversion unsaturated silicon germanium, organic alcohol, diacetylene series organic alcohol

ABSTRACT: The synthesis of silicon and germanium organic acetylene chlorides is studied by means of a reaction of gaseous hydrogen chloride with corresponding acetylene alcohols according to:

Card 1/4

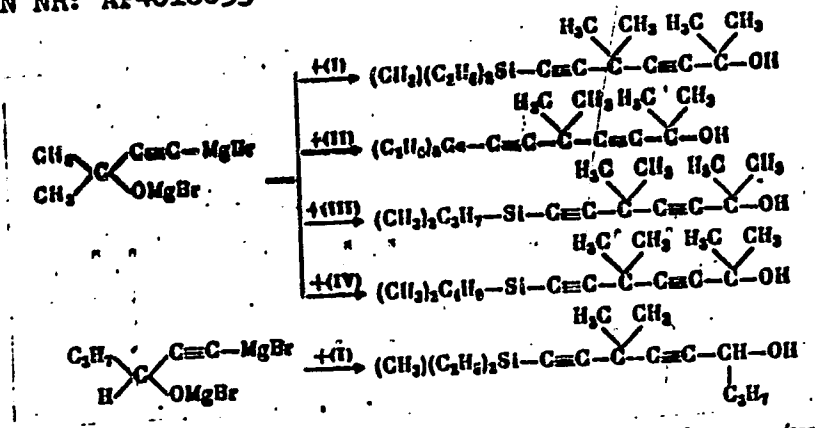
ACCESSION NR: AP4018053



Silicon and germanium organic monoatomic diacetylene alcohols with isolated triple bonds were synthesized by means of the reaction of the corresponding Iotsich reagent of acetylene alcohols with some silicon and germanium organic acetylene chlorides as follows:

Card 2/4

ACCESSION NR: AP4018053



Four representative silicon and germanium organic acetylene tertiary chlorides are described for the first time: 4-methyldiethylsilicon-2-chlor-2-methylbutine-3; 4-triethylgermanium-2-chlor-2-methylbutine-3; 4-dimethylbutyl-4-dimethylpropylsilicon-2-chlor-2-methylbutine-3; Five representative silicon and silicon-2-chlor-2-methylbutine-3.

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ACCESSION NR: AP4018053

germanium organic monoatomic diacetylene alcohols determined for the first time are also described: 9-methyldiacetylsilicon-7,7-dimethyl-nonadiine-5, 8-ol-4; 7-methyldiethylsilicon-2,5,5-trimethylheptadiine-3,6-ol-2; 7-triethylgermanium-2,5,5-trimethylheptadiine-3,6-ol-2; 7-dimethylpropylsilicon-2,5,5-trimethylheptadiine-3,6-ol-2; 7-dimethylbutylsilicon-2,5,5-trimethylheptadiine-3,6-ol-2. The germanium organic diacetylene acetal n.-butyltriethylgermaniumtetramethylhexadiine-acetal is described for the first time. Orig. art. has: 2 tables.

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR (Institute of Petrochemical Processes, Academy of Sciences Azerbaizan SSR)

SUBMITTED: 19Dec62 DATE ACQ: 19Mar64 ENCL: 00

SUB CODE: CH NO REF SOV: 003 OTHER: 000

Card 4/4

L 62806-65 EWT(m)/EPF(c)/EWP(j)/EWA(c) Pc-4/Pr-4 JAJ/RM

ACCESSION NR: AP5018354 UR/0316/65/000/002/0059/0063

AUTHOR: Shikhiyev, I. A.; Mekhmandarova, N. T.; Aslanov, I. A. 23 B

TITLE: Synthesis and conversions of unsaturated organosilicon compounds

SOURCE: Azerbaydzhanskiy khimicheskiy zhurnal, no. 2, 1965, 59-63

TOPIC TAGS: organosilicon compound, organic synthesis

ABSTRACT: This is a continuation of the work with elemental organic derivatives of the secondary acetylenic alcohols [ZhOKh, 33, 377 (1963)]. In this report a synthesis is carried out of some representatives of the γ-silicon-containing secondary alcohols of the ethylene series by reaction of propyl- and isopropylethynyl carbi-

alcohols of the ethylene series by reaction of propyl- and isopropylethynyl carbinol with trialkylsilanes in the presence of H_2PtCl_6 according to the following scheme:

$$R{-}CHOHC{\equiv}CH \xrightarrow{R'_3SiH} R{-}CHOHCH{=}CHSiR'_3$$

$R = (C_3H_7\text{-}iso),\ C_3H_7\text{-}n,$ (I–VI)

$R' = C_2H_5,\ C_3H_7, C_4H_9$

Card 1/2

L 62306-65

ACCESSION NR: AP5018354

The presence of a hydroxyl group in the produced alcohols of the ethylene series was proven by formation of acetals and cyanoethylation. Orig. art. has: 1 table.

ASSOCIATION: INKhP AN Azerb. SSR

SUBMITTED: 16Dec63 ENCL: 00 SUB CODE: OC

NO REF SOV: 007 OTHER: 001

Card 2/2

L 6485-66 EWT(m)/EPF(c)/EWP(j)/T/EWP(t)/EWP(b) IJP(c) JD/RM

ACC NR: AP5028891 SOURCE CODE: UR/0316/65/000/004/0042/0043

AUTHOR: Shikhiyev, I. A.; Aslanov, I. A.; Mekhmandarova, N. T.; Verdiyeva, S. Sh.

ORG: INKhP AN AzerSSR

TITLE: Synthesis and conversions of unsaturated germanium and silicon organic compounds

SOURCE: Azerbaydzhanskiy khimicheskiy zhurnal, no. 4, 1965, 42-43

TOPIC TAGS: organogermanium compound, organosilicon compound, secondary alcohol, ethylenic alcohol, silane, germane

ABSTRACT: Ten new compounds were synthesized by reacting propylethynylcarbinol and isopropylethynylcarbinol with trialkylsilanes and trialkylgermanes in the presence of chloroplatinic acid:

$$\left.\begin{array}{l} C_3H_7CH(OH)C \equiv CH \\ RCH(OH)C \equiv CH \end{array}\right\} \xrightarrow{\begin{array}{l} HSiR_3' \\ HGe(C_2H_5)_3 \end{array}} \left\{\begin{array}{l} C_3H_7CH(OH)CH = CHSiR_3' \\ RCH(OH)CH = CHGe(C_2H_5)_3 \end{array}\right.$$

Card 1/2

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L 6485-66

ACC NR: AP5028891 O

where R = iso-C_3H_7; C_3H_7

R'_3 = $CH_3(C_2H_5)_2$; $CH_3(C_3H_7)_2$; $CH_3(iso\text{-}C_3H_7)_2$; $C_2H_5(iso\text{-}C_3H_7)_2$; $C_2H_5(C_3H_7)_2$.

The presence of the hydroxyl group in the synthesized compounds was determined by cyanoethylation. Properties of these compounds are tabulated in the original. Orig. art. has: 1 table. [EW]

SUB CODE: OC/ SUBM DATE: 07Dec64/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS: 4139

Card 2/2

L 54618-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM S/0079/65/035/003/0459/0461
ACCESSION NR: AP5008837

AUTHOR: Shikhiyev, I. A.; Aslanov, I. A.; Mekhmandarova, N. T.

TITLE: Studies in the field of synthesis and transformations of unsaturated germanium organic compounds. Synthesis and conversions of some monohydric germanium organic diacetylene alcohols with isolated triple bonds

SOURCE: Zhurnal obshchey khimii, v. 35, no. 3, 1965, 459-461

TOPIC TAGS: germanium organic compound, organic synthesis

ABSTRACT: The article describes the synthesis of some representatives of germanium organic monohydric diacetylene alcohols with isolated triple bonds using an appropriate Iotsich reagent and germanium organic acetylenic chloride of 5-triethylgermanium-3-methyl-3-chloropent-4-yne according to the reaction
$BrMgOC(R_2)C{\equiv}CMgBr + (C_2H_5)_3GeC{\equiv}C(CH_3)(C_2H_5)Cl \rightarrow (C_2H_5)_3GeC{\equiv}C{-}C(CH_3)(C_2H_5)C{\equiv}C{-}C(R_2)OH$.
The presence of a hydroxyl group in the obtained compounds was proved through acetylation by reacting diacetylene alcohol with vinylbutyl ether. The article gives physical constants for the synthesized compounds. Orig. art. has: 1 table.

Card 1/2

L 54618-65
ACCESSION NR: AP5008837

ASSOCIATION: Institut neftekhimicheskikh protsessov Akademii nauk Azerbaydzhanskoy SSR (Institute of Petrochemical Processes, Academy of Sciences Azerbaydzhan SSR)

SUBMITTED: 24Dec63 ENCL: 00 SUB CODE: OC

NO REF SOV: 003 OTHER: 000

Card 2/2

L 04551-67 EWT(m)/EWP(j) RM

ACC NR: AP6025992 SOURCE CODE: UR/0079/66/036/007/1295/1297

AUTHOR: Shikhiyev, I. A.; Aslanov, I. A.; Mekhmandarova, N. T.

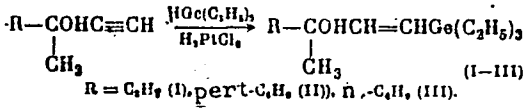
ORG: none

TITLE: Investigations of synthesis and transformations of unsaturated organogermanium compcunds. XXX. Synthesis and transformations of certain branched monoatomic tertiary ethylenic organogermanium alcohols

SOURCE: Zhurnal obshchey khimii, v. 36, no. 7, 1966, 1295-1297

TOPIC TAGS: organic synthesis, organogermanium compound

ABSTRACT: In this article, some tertiary ethylenic organogermanium alcohols were synthesized by reacting methylpropyl-, methyl-tert-butyl, methyl-n-butylethynyl carbiols with triethylgermane according to the following reaction



R = C_2H_7 (I), pert-C_4H_9 (II), n-C_4H_9 (III).

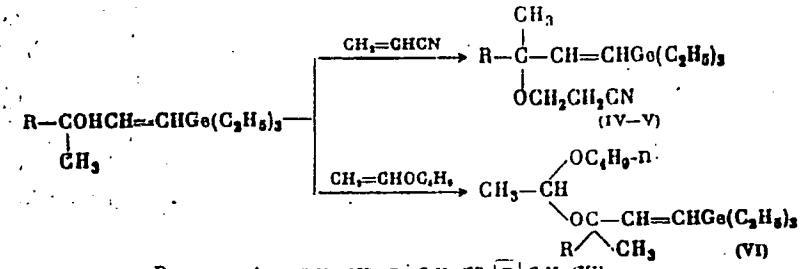
The obtained compounds are: 1-triethylgermyl-3-methylhex-1-ene-3-ol, 1-triethylgermyl-3,4,4-trimethylpent-1-ene-3-ol, 1-triethylgermyl-3-methylhept-1-ene-3-ol, 1-tri-

UDC: 547.438.6

Card 1/2

L 04551-67
ACC NR: AP6025992

-ethylgermyl-3,4,4-trimethylpent-1-ene-3-cyancethyl ether, 1-triethylgermyl-3-methylhept-1-ene-3-cyanoethyl ether, n-butyl-1-triethylgermyl-3-methylhept-1-ene acetal. The presence of hydroxyl group in the obtained organogermanium ethylenic alcohols was proven by cyanoethylation and acetylation by the following scheme:



R = pert -C_4H_9 (IV), n-C_4H_9 (V), n-C_4H_9 (VI).

The table in the article summarizes the properties and elemental analysis of the synthesized compounds. Orig. art. has: 1 figure, 1 table.

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 002

Card 2/2

(N) L 8330-66 EWT(m)/EWP(j)/EWP(b)/T/EWP(t) RM/WW/WB/JD

ACC NR: AP5025766 SOURCE CODE: UR/0286/65/000/018/0154/0154

AUTHORS: Trifel', M. S.; Khandarova, A. G.; Mekhmandarova, S. A.; Satern, Ye. P.

ORG: none

TITLE: Method for protecting parts of hydromachinery, for example, blades of ship propellers or hydroturbine wheels, from corrosion-cavitation damage. Class 48, No. 164181

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 18, 1965, 154

TOPIC TAGS: hydromachinery, corrosion protection, cavitation damage, corrosion damage, MARINE EQUIPMENT, MARINE ENGINEERING

ABSTRACT: This Author Certificate presents a method for protecting parts of hydromachinery, e.g., blades of ship propellers or hydroturbine wheels, from corrosion-cavitation damage by protective painting or cathodic polarization. To increase corrosion-cavitation resistance, protection is provided by simultaneous use of cathodic polarization from a constant voltage source and by protective painting of steel parts with zinc paint, for example.

SUB CODE: 13/ SUBM DATE: 02Nov63

jw

Card 1/1 UDC: 620.197.5/.6

ANGELOVA, V.; MALCHEVA, Z.; MEKHMEDOV, R.

Model for the manufacture of hydrochloric acid, made of Plexiglas. Biol i khim 4 no.6:57-60 '62.

1. Chlen na Redaktsionnata kolegiia, "Biologiia i Khimiia" (for Angelova).

DOMBROVSKIY, A.I., prof.; MEKHONOSHIN, A.A.

Eosinophilic granuloma of the stomach. Vest. rent. i rad. 35 no. 5:81-83 S-O '60. (MIRA 13:12)

1. Iz Rostovskoy oblastnoy bol'nitsy (glavnyy vrach M.F. Mokrousov) i kafedry rentgenologii i radiologii (zav. - prof. A.I. Dombrovskiy) Rostovskogo meditsinskogo instituta (dir. prof. P.P. Kovalenko).
(STOMACH—TUMORS)

DOMBROVSKIY, A.I.; MEKHONOSHIN, A.A.

Intragastric foreign bodies simulating tumors. Vest. rent. i rad. 37 no.5:68-69 S-O '62. (MIRA 17:12)

1. Iz kafedry rentgeno-radiologii Rostovskogo meditsinskogo instituta i rentgenovskogo otdeleniya Rostovskoy oblastnoy bol'nitsy (glavnyy vrach M.F. Mokrousov).

MEKHONOSHIN, G.I.

Brief consideration on the treatment of chronic adhesive pericarditis. Klin.med. 38 no.11:103 N '60. (MIRA 13:12)
(PERICARDITIS)

MEKHONOSHIN, G.I.

Mechanism of strangulation asphyxia. Sud.-med. ekspert. 4 no. 1:63 Ja-Mr '61. (MIRA 14:4)
(ASPHYXIA)

MEKHONOSHIN, I.P., slesar'-apparatchik

Reconditioning of the brush carriage windows of electric machinery. Elek.i tepl.tiaga 6 no.5:43 My '62. (MIRA 15:6)

1. Depo Perm' II Sverdlovskoy dorogi.
(Brushes, Electric—Maintenance and repair)

MEKHONOSHIN, S. I. PA 27T16

USSR/Drilling Machinery Jul/Aug 1947
Drilling, Rock

"A Simple Portable Drill Assembly," S. I. Mekhonoshin, 3 pp

"Razvedka Nedr" No 4

This article describes briefly two variations of a simplified portable drill assembly developed by G. M. Krasovskiy, G. I. Zakharov, and S. I. Mekhonoshin, workers at the Central Mechanical Workshop of the Ural Geological Administration. Presents several photographs of the drill assembly.

LC 27T16

MIKHONOSHIN, S. I. PA 57T39

USSR/Geol Nov/Dec 1947
Mining Equipment

"Rationalization and Invention in the Ural Geological Administration," S. I. Mekhonoshin, 7 pp

"Razvedka Nedr" No 6

Extensive account of work done in rationalization of equipment used in production processes by the Ural Geological Administration. Discusses extraction and use of natural combustible gases dissolved in underground waters, device for cutting pipes on lathe screw-cutting machines, etc.

LC 57T39